

WHAT IS CLAIMED IS:

1. A gateway device to be installed between a public telephone network and a private branch exchange, comprising:

5 a public telephone network connection unit operable to connect said private branch exchange to said public telephone network;

an Internet connection unit operable to connect said private branch exchange to the Internet;

10 a connection switching unit operable to selectively connect either said public telephone network or the Internet to said private branch exchange;

a detecting unit operable to detect the use condition of a communication line connected to said private branch exchange;

a notification unit operable to notify said public telephone network that only calling is viable to said public telephone network in the case where the communication line connected to said private branch exchange is in use.

20 2. The gateway device as claimed in claim 1 wherein said notification unit notifies said public telephone network that an outgoing call process and an incoming call process are viable when the communication line connected to said private branch exchange comes to be in an unused state.

30 3. The gateway device as claimed in claim 1 wherein there are a plurality of units each of which serves as said public telephone network connection unit and wherein, when the communication line connected to said private branch exchange of one of the public telephone network connection units is in use, in accordance with said notification, another public telephone network connection unit serves to make a connection by proxy in response to a connection request issued for said 35 one of the public telephone network connection units.

4. The gateway device as claimed in claim 1 further comprising:

an identifier generation unit operable to generate a

caller identifier for identifying an extension telephone connected to said private branch exchange on the basis of a control signal from the extension telephone, and an intended recipient identifier for identifying a communication device of
5 the intended recipient of the extension telephone;

a conversion unit operable to perform conversion between voice signals and packet signals relating to the communication for voice conversation; and

10 a packet transmitter receiver unit operable to transmit said packet signals to and receive said packet signals from the Internet on the basis of said caller identifier and said intended recipient identifier.

15 5. The gateway device as claimed in claim 4 further comprising: a determination unit operable in order that said voice signals are output to said public telephone network without conversion into packet signals depending upon said intended recipient identifier.

20 6. A private branch exchange system operable to switchingly connect between a public telephone network and an extension telephone, comprising:

25 a public telephone network connection unit operable to connect said extension telephone to said public telephone network;

an Internet connection unit operable to connect said extension telephone to the Internet;

30 a connection switching unit operable to selectively connect either said public telephone network or the Internet to said extension telephone;

a detecting unit operable to detect the use condition of a communication line connected to said extension telephone;

35 a notification unit operable to notify said public telephone network that only calling is viable to said public telephone network in the case where the communication line connected to said extension telephone is in use.

7. The private branch exchange system as claimed in claim 6 wherein said notification unit notifies said public telephone

network that an outgoing call process and an incoming call process are viable when the communication line connected to said private branch exchange comes to be in an unused state.

5 8. The private branch exchange system as claimed in claim 6 wherein there are a plurality of units each of which serves as said public telephone network connection unit and wherein, when the communication line connected to said extension telephone of one of the public telephone network connection 10 units is in use, in accordance with said notification, another public telephone network connection unit serves to make a connection by proxy in response to a connection request issued for said one of the public telephone network connection units.

15 9. The private branch exchange system as claimed in claim 6 further comprising:

an identifier generation unit operable to generate a caller identifier for identifying an extension telephone connected to said private branch exchange on the basis of a 20 control signal from the extension telephone, and an intended recipient identifier for identifying a communication device of the intended recipient of the extension telephone;

a conversion unit operable to perform conversion between voice signals and packet signals relating to the communication 25 for voice conversation; and

a packet transmitter receiver unit operable to transmit said packet signals to and receive said packet signals from the Internet on the basis of said caller identifier and said intended recipient identifier.

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10. The private branch exchange system as claimed in claim 9 further comprising: a determination unit operable in order that said voice signals are output to said public telephone network without conversion into packet signals depending upon 35 said intended recipient identifier.

11. An extension telephone switching method of switchingly connecting between a public telephone network and an extension telephone, comprising:

a step of selectively connecting either said public telephone network or the Internet to said extension telephone;

a step of detecting the use condition of a communication line connected to said extension telephone;

5 a step of notifying said public telephone network that only calling is viable to said public telephone network in the case where the communication line connected to said extension telephone is in use.

10 12. The extension telephone switching method as claimed in claim 11 further comprising a step of notifying said public telephone network that an outgoing call process and an incoming call process are viable when the communication line connected to said extension telephone comes to be in an unused
15 state.

13. The extension telephone switching method as claimed in claim 11 wherein there are a plurality of units each of which serves as said public telephone network connection unit, and
20 further comprising a step of making a proxy connection, when the communication line connected to said private branch exchange of one of the public telephone network connection units is in use, by another public telephone network connection unit serves in response to a connection request
25 issued for said one of the public telephone network connection units in accordance with the notification.